



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,483	11/01/2001	Jeffrey W. Carr	RAPT-01000US2	2209
23910	7590	06/04/2007		
FLIESLER MEYER LLP 650 CALIFORNIA STREET 14TH FLOOR SAN FRANCISCO, CA 94108			EXAMINER OLSEN, ALLAN W	
			ART UNIT 1763	PAPER NUMBER
			MAIL DATE 06/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/002,483

Applicant(s)

CARR, JEFFREY W.

Examiner

Allan Olsen

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/3/07</u> | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1763

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 3, 2007 has been entered.

Terminal Disclaimer

The terminal disclaimer filed on April 3, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 6,660,177 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-14, 18, 20, 22-26, 28, 29 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,284,668 issued to Imahashi.

Imahashi teaches polishing a substrate with an inductively coupled, atmospheric pressure plasma torch. Imahashi teaches generating a plasma discharge from argon or a mixture of argon and a reactive gas that serves as an etchant. Imahashi teaches controlling the flow of gases into the plasma torch. Imahashi teaches sub-aperture plasma processing. See: abstract; figures 2, 3, 5 and 7; column 1, lines 57-67; column 3, lines 51-56; column 4, lines 5-35; column 6, lines 31-33; and, column 8, lines 28-29.

Regarding the newly recited: "by controlling a footprint of the plasma discharge from the plasma torch; and directs the plasma discharge to a target portion of the surface of the workpiece", the examiner notes that Imahashi teaches directing the plasma discharge to a target portion of the substrate in that Imahashi teaches the plasma flow being directly delivered toward a region about 1/10 the diameter of the substrate (column 5, lines 10-13). Imahashi teaches using a plasma torch that has a diameter that is 1/10 that of the substrate being processed. Imahashi also teaches using a plasma torch with an outlet area that is about 1/100 the area of the substrate being processed (column 5, lines 36-44). Imahashi teaches scanning a plasma torch, having a diameter on the order of 1-2 cm, over the entire target surface of an 8-inch substrate (column 5, lines 50-52 and column 6, lines 3-5). Imahashi teaches controlling the footprint of the plasma in that Imahashi teaches controlling the spread or distribution of the plasma (footprint) over the substrate by controlling the distance between the plasma torch and the substrate, as well as controlling the rate of rotation (column 5, lines 25-35 and 53-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imahashi as applied to claim 1 above and further in view of US Patent 6,218,640 issued to Selitser.

Imahashi does not teach a torch comprising a plurality of concentric tubes.

Selitser teaches a plasma torch comprising a plurality of concentric tubes.

Selitser teaches providing a sheath gas to protect the central channel. Selitser teaches introducing the plasma gas tangentially (column 5, line 55 - column 6, line 15).

It would have been obvious to one skilled in the art to incorporate the nested tube configuration of Selitser because Selitser demonstrates that this provides an effective means of controlling the plasma discharge. By controlling the flow of gas through the different channels Selitser teaches that torch components can be shielded from the high temperature plasma. Selitser teaches the multi-tube torch provides a means of creating flow disturbance that results in more efficient mixing of gases and a more efficient coupling of plasma energy to the gases.

Art Unit: 1763

Claims 17, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imahashi as applied to claim 1 above and further in view of US Patent 4,674,683 issued to Fabel.

Imahashi does not teach introducing a precursor gas tangentially. Imahashi does not teach maintaining a plasma torch temperature of between 5000° and 15,000° C.

Fabel teaches introducing a plasma gas tangentially. Fabel teaches the temperature of plasma processes.

It would have been obvious one skilled in the art to introduce a plasma gas tangentially because Fabel teaches that provision of a tangential flow provides a degree of control over the amount of energy that is coupled into the plasma gas as well as the shape, position and length of the plasma plume (see column 5, line 55 - column 6, line 15). It would have been obvious to one skilled in the art to maintain the temperature of Imahashi's plasma torch to between 5000° and 15,000° C because Fabel teaches that this is the standard temperature range for plasma processes.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imahashi as applied to claim 1 above and further in view of US Patent 6,105,534 issued to Siniaguine et al. (hereinafter, Siniaguine).

Imahashi does not teach using a plasma torch with a multiple head.

Siniaguine teaches using a plasma torch with a multiple head.

It would have been obvious one skilled in the art to use a plasma torch with a multiple head because Siniaguine teaches that this increases efficiency.

Response to Arguments

Applicant's arguments filed April 3, 2007 have been fully considered but are not persuasive. Applicant contends that Imahashi does not teach either of: controlling a footprint of the plasma discharge from the plasma torch; and, directing the plasma discharge to a target portion of the surface of the workpiece.

The examiner addressed the teaching of Imahashi with respect to these limitations in the rejection set forth above.

Conclusion

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1763

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441.

The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Allan Olsen", is written over a horizontal line.

Allan Olsen
Primary Examiner
Art Unit 1763